Leatherback Turtle

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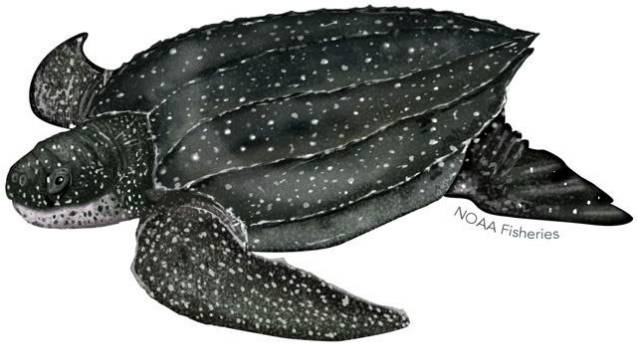
Dermochelys coriacea



Protected Status

ESA ENDANGERED
Throughout Its Range

CITES APPENDIX I
Throughout Its Range

Quick Facts

WEIGHT	Adult: 750 to 1,000 pounds
LIFESPAN	Unknown, but estimated to be 50 years or more
LENGTH	Adult: 5 to 6 feet
THREATS	Bycatch in fishing gear, Climate change, Direct harvest of turtles and eggs, Loss and degradation of nesting and foraging habitat, Ocean pollution/marine debris, Vessel strikes
REGION	Alaska, New England/Mid-Atlantic, Pacific Islands, Southeast, West Coast

Leatherback turtle hatchling on beach. Credit: NOAA Fisheries

About the Species

The leatherback sea turtle is the largest turtle in the world. They are the only species of sea turtle that lack scales and a hard shell. They are named for their tough rubbery skin and have existed in their current form since the age of the dinosaurs. Leatherbacks are highly migratory, some swimming over 10,000 miles a year between nesting and foraging grounds. They are also accomplished divers with the deepest recorded dive reaching nearly 4,000 feet—deeper than most marine mammals.

The leatherback turtle has the widest global distribution of any reptile, with nesting mainly on tropical or subtropical beaches. Once prevalent in every ocean except the Arctic and Antarctic, the leatherback population is rapidly declining in many parts of the world. They face threats on both nesting beaches and in the marine environment. The greatest of these threats worldwide are incidental capture in fishing gear (bycatch), hunting of turtles, and collection of eggs for human consumption. The Pacific leatherback turtle populations are most at-risk of extinction. Pacific leatherbacks are one of nine ESA-listed species identified in NOAA's Species in the Spotlight initiative. Through this initiative, NOAA Fisheries has made it a priority to focus recovery efforts on stabilizing and recovering Pacific leatherback populations in order to prevent their extinction.

NOAA Fisheries and our partners are dedicated to conserving and recovering leatherback turtle populations worldwide. We use a variety of innovative techniques to study, protect, and recover this endangered species. We engage our partners as we develop regulations and recovery plans that foster the conservation and recovery of leatherbacks and their habitats, and we fund research, monitoring, and conservation projects to implement priorities outlined in recovery plans.

Population Status

The leatherback sea turtle is listed as endangered under the Endangered Species Act. It is estimated that the global population has declined 40 percent over the past three generations. Leatherback nesting in Malaysia has essentially disappeared, declining from about 10,000 nests in 1953 to only one or two nests per year since 2003.

The Pacific leatherback turtle populations are most at-risk for extinction as evidenced by ongoing precipitous declines in nesting through their range. Primary nesting habitats of the Eastern Pacific leatherback turtle population are in Mexico and Costa Rica, with some isolated nesting in Panama and Nicaragua. Over the last three generations, nesting in this region has declined by over 90 percent. In the Western Pacific, the largest remaining nesting population, which accounts for 75 percent of the Western Pacific population, occurs in Papua Barat, Indonesia and has also declined by over 80 percent.

In the Northwest Atlantic,leatherback nesting was increasing; however, there have been significant decreases in recent years at numerous locations, including on the Atlantic coast of Florida, which is one of the main nesting areas in the continental United States. Large but potentially declining nesting populations also occur in the eastern Atlantic, along the west African coastline, but uncertainty in the data limits our understanding of the trends at many of those nesting beaches.

The 2020 Status Review of the leatherback sea turtle under the ESA provides additional information on abundance and population trends.

Protected Status

ESA Endangered

- Throughout Its Range

CITES Appendix I

- Throughout Its Range

Appearance

The leatherback has a primarily black, rubbery skin with pinkish-white coloring on its underside. They are the only species of sea turtle that lack scales. Their shell (carapace) consists of small, interlocking dermal bones beneath the skin that overlie a supportive layer of connective tissue and fat and the deeper skeleton. Their carapace has seven ridges along its length and tapers to a blunt

point. Their front flippers are proportionally longer than in other sea turtles and their back flippers are paddle-shaped. Both their rigid carapace and their large flippers make the leatherback uniquely equipped for long distance foraging migrations.

Behavior and Diet

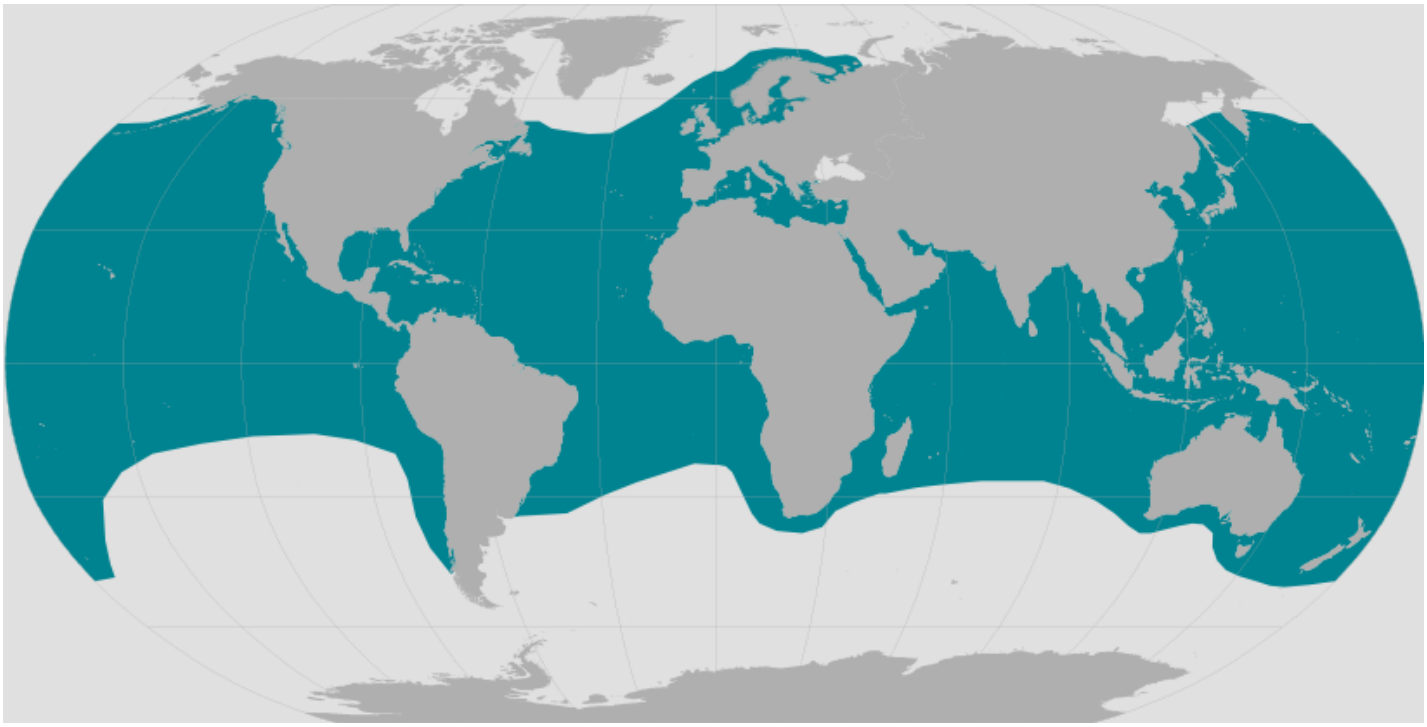
Leatherback sea turtles undertake the longest migrations between breeding and feeding areas of any sea turtle, some averaging 3,700 miles each way. They spend most of their lives in the ocean, but females leave the water to lay eggs. Leatherbacks are strong swimmers and can dive to depths of approximately 4,000 feet—deeper than any other turtle—and can stay down for up to 85 minutes.

Leatherbacks lack the crushing, chewing plates characteristic of other sea turtles that feed on hard-bodied prey. Instead, they have pointed tooth-like cusps and sharp-edged jaws that are perfectly adapted for a diet of soft-bodied open ocean prey such as jellyfish and salps. A leatherback's mouth and throat also have backward-pointing spines that help retain gelatinous prey.

Where They Live

Leatherbacks occur in the Atlantic, Pacific, and Indian Oceans. Nesting beaches are primarily located in tropical latitudes around the world. Globally, the largest remaining nesting aggregations are found in Trinidad and Tobago, West-Indies (Northwest Atlantic) and Gabon, Africa (Southeast Atlantic).

Leatherbacks occupy U.S. waters in the Northwest Atlantic, West Pacific, and East Pacific. Within the United States, the majority of nesting occurs in Florida, Puerto Rico, and the U.S. Virgin Islands. Leatherbacks have been satellite tagged at sea on foraging grounds off Nova Scotia, Canada and tracked to nesting beaches in the Caribbean. Western Pacific leatherbacks feed off the Pacific coast of North America, and migrate across the Pacific to nest in Indonesia, Papua New Guinea, and the Solomon Islands. Eastern Pacific leatherbacks, on the other hand, nest along the Pacific coast of Mexico and Costa Rica, and forage in the south-central and eastern tropical Pacific Ocean.



World map providing approximate representation of the leatherback turtle's range.

Lifespan & Reproduction

Leatherback turtles grow faster than hard-shelled turtles. However, there is uncertainty about the age at which they reach sexual maturity. Average estimates range from 9 to 20 years of age. Likewise, little is known about their life expectancy, but they are likely long-lived, with longevity estimates of 45 to 50 years, or more.

Female leatherbacks nest at night on tropical and subtropical beaches. They dig a large body pit to lay their eggs in deep egg chambers/nests. A nesting leatherback will disturb a huge area on the beach and leave behind long, circling tracks. In the United States and Caribbean, the nesting season lasts from March to July. Satellite tagging studies of leatherbacks from the Western Pacific indicate that turtles that nest during different times of the year have different migration patterns. Summer nesting turtles (July through September) have tropical and temperate northern hemisphere foraging regions, while winter nesters (November through February) traverse to tropical waters and temperate regions of the southern hemisphere. Female leatherbacks return to nest every 2 to 4 years. Leatherbacks nest several times during a nesting season, typically at 8- to 12-day intervals and lay clutches of approximately 100 eggs. The eggs incubate approximately two months before leatherback hatchlings emerge from the nest.

Threats

Bycatch in Fishing Gear

The primary threat to sea turtles is their unintended capture in fishing gear which can result in drowning or cause injuries that lead to death or debilitation (for example, swallowing hooks or flipper entanglement). The term for this unintended capture is bycatch. Sea turtle bycatch is a worldwide

problem. The primary types of gear that result in leatherback turtle bycatch include gillnets, trawls, longlines, and vertical lines attached to pot/traps.

Direct Harvest of Turtles and Eggs

Historically, sea turtles including leatherbacks were killed for their meat and their eggs were collected for consumption. Presently, leatherback turtles are protected in many countries, but in some places, the killing of leatherbacks and collection of eggs continue.

Loss and Degradation of Nesting Habitat

Coastal development and rising seas from climate change are leading to the loss of nesting beach habitat for leatherback turtles. Human-related changes associated with coastal development include beachfront lighting, shoreline armoring, and beach driving. Shoreline hardening or armoring (e.g., sea walls) can result in the complete loss of dry sand suitable for successful nesting. Artificial lighting on and near nesting beaches can deter nesting females from coming ashore to nest and can disorient hatchlings trying to find the sea after emerging from their nests.

Vessel Strikes

Various types of watercraft can strike leatherback turtles when they are at or near the surface, resulting in injury or death. Vessel strikes are a major threat near ports and waterways, and adjacent to highly developed coastlines. Vessel strikes are a significant cause of leatherback strandings in the eastern United States.

Ocean Pollution/Marine Debris

Increasing pollution of nearshore and offshore marine habitats threatens all sea turtles and degrades their habitats. The Deepwater Horizon oil spill was the largest offshore oil spill in U.S. history and affected nesting (including nesting females, eggs, and hatchlings), small juvenile, large juvenile, and adult sea turtles throughout the Gulf of Mexico. Ingestion of marine debris is another threat to all species of sea turtles. Leatherback turtles may ingest fishing line, balloons, plastic bags, floating tar or oil, and other materials discarded by humans which they can mistake for food. They may also become entangled in marine debris, including lost or discarded fishing gear, and can be killed or seriously injured.

Climate Change

For all sea turtles, a warming climate is likely to result in changes in beach morphology and higher sand temperatures which can be lethal to eggs, or alter the ratio of male and female hatchlings produced. Rising seas and storm events cause beach erosion which may flood nests or wash them away. Changes in the temperature of the marine environment are likely to alter the abundance and distribution of food resources, leading to a shift in the migratory and foraging range and nesting season of leatherbacks.

Scientific Classification

Kingdom	Animalia

Phylum	Chordata
Class	Reptilia
Order	Testudines
Family	Dermochelyidae
Genus	*Dermochelys*
Species	*coriacea*

What We Do

Conservation & Management

Since 1977, NOAA Fisheries and the U.S. Fish and Wildlife Service have shared jurisdiction of sea turtles listed under the ESA. A Memorandum of Understanding outlines our specific roles: NOAA Fisheries lead the conservation and recovery efforts for sea turtles in the marine environment, and the U.S. FWS lead conservation and recovery efforts for sea turtles on nesting beaches.

We are committed to the protection and conservation of leatherback turtles by:

- Working with partners to ensure compliance with national, state, and U.S. territory laws to protect sea turtles
- Cooperating with international partners to implement conservation measures and establish agreements, such as international treaties that protect sea turtles
- Researching, developing, and implementing changes to fishing gear practices and/or fishing gear modifications (e.g., turtle excluder devices), using large circle hooks in longline fisheries, and implementing spatial or temporal closures to avoid or minimize bycatch
- Designating critical habitat areas essential for the conservation of leatherback turtles
- Protecting and monitoring leatherback turtles in the marine environment and on nesting beaches
- Conducting research on threats and developing conservation measures that reduce threats and promote recovery
- Collecting information on the species biology and ecology to better inform conservation management strategies and to assess progress toward recovery
- Conducting and supporting education and outreach efforts to the general public by raising awareness on threats to sea turtles, highlighting the importance of sea turtle conservation, and sharing ways people can help sea turtles

Learn more about our conservation and management efforts >

Science

We conduct various research activities on the biology, behavior, and ecology of leatherback sea turtles. The results of this research are used to evaluate population trends, inform conservation management strategies, and to assess progress toward recovery for this imperiled species. Our work includes:

- Monitoring populations through vessel-based or aerial surveys, nesting beach studies, satellite tracking, genetics, and mark-recapture (flipper tagging) studies
- Studying foraging and reproductive behavior to understand demographics, physiology, habitat use, and resource requirements
- Tracking individuals over time to understand important aspects of their life history such as growth and age to maturity
- Evaluating life history and population health information from stranding and fisheries bycatch datasets
- Understanding impacts of change in environmental and ocean conditions on sea turtle abundance, distribution, and demographics
- Estimating population abundance and analyzing trends
- Monitoring fisheries impacts and designing fishing gear to minimize bycatch during commercial and recreational fishing operations
- Capacity building and training to share the latest scientific techniques and tools to monitor sea turtle populations globally

Learn more about our research >

How You Can Help

Reduce Ocean Trash

Reduce marine debris and participate in coastal clean-up events. Responsibly dispose of fishing line - lost or discarded fish line kills hundreds of sea turtles and other animals every year. Trash in the environment can end up in the ocean and harm marine life.

Reduce plastic use to keep our beaches and oceans clean—carry reusable water bottles and shopping bags.

Refrain from releasing balloons—they can end up in the ocean where sea turtles can mistake them for prey like jellyfish or become entangled in lines.

Learn more about marine debris >

Keep Your Distance

Keep Your Distance

Admire sea turtles from a respectful distance by land or sea and follow these guidelines:

Don’t disturb nesting turtles, nests, or hatchlings. If interested, attend organized sea turtle watches that know how to safely observe sea turtles.

Never feed or attempt to feed or touch sea turtles as it changes their natural behavior and may make them more susceptible to harm.

Boat strikes are a serious threat to sea turtles. When boating, **watch for sea turtles in the water, slow down, and steer around them**. If you encounter them closer than 50 yards, put your engine in neutral to avoid injury. Remember, *Go Slow, Sea Turtles Below!*

Learn more about our marine life viewing guideline ›

Protect Sea Turtle Habitat

Beaches are paramount for healthy sea turtle populations since females come to the shore to deposit their eggs into nests.

Keep nesting beaches dark and safe at night. Turn off, shield, or redirect lights visible from the beach—lights disorient hatchlings and discourage nesting females from coming onto beaches to lay their eggs.

After a day at the beach, remove recreational beach equipment like chairs and umbrellas so sea turtles are not entrapped or turned away. Also, fill in holes and knock down sandcastles before you leave—they can become obstacles for nesting turtles or emerging hatchlings.

Do not drive on sea turtle nesting beaches—vehicles can deter females from nesting, directly strike hatchlings and nesting turtles, damage incubating nests, and create ruts that prevent hatchlings from reaching the sea.

Report Marine Life in Distress

If you see a stranded, injured, or entangled sea turtle, contact professional responders and scientists who can take appropriate action. Numerous organizations around the country are trained and ready to respond.

Learn who you should contact when you encounter a stranded or injured marine animal >

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In the Spotlight

Pacific Leatherback Turtle

The Pacific leatherback is one of NOAA Fisheries' Species in the Spotlight. This initiative is a concerted, agency-wide effort launched in 2015 to spotlight and save the most highly at-risk marine species.

Pacific leatherback sea turtles are genetically and biologically unique. They migrate extreme distances across the Pacific Ocean from nesting to foraging/feeding areas, and are generally larger in size than Atlantic leatherbacks. Pacific leatherback populations have plummeted in recent decades—Western Pacific leatherbacks have declined more than 80 percent and Eastern Pacific leatherbacks have declined

by more than 97 percent. Extensive turtle and egg harvest and bycatch in fishing gear are the primary causes of these declines.

Leatherbacks are listed as endangered under the Endangered Species Act. The Pacific leatherback continues to decline. The dire status for Pacific leatherbacks make them a priority for recovery and conservation efforts within NOAA Fisheries and with our partners worldwide to stabilize and prevent extinction of this iconic species.

Where Pacific Leatherback Turtles Live

Pacific leatherbacks are split into two populations—Western Pacific and Eastern Pacific—based on range distribution and biological and genetic characteristics. Western Pacific leatherbacks nest in the Indo-Pacific region and migrate to the tropical waters of the Indonesian seas, the South China Sea, Malaysia, the Philippines, and throughout the temperate waters of the North Pacific, including areas of open ocean in the central North Pacific and coastal areas off the west coast of the United States, as well as to southeastern Australia and New Zealand. Eastern Pacific

Movement patterns for Western Pacific and Eastern Pacific leatherback sea turtle populations. Credit: Bailey et al. 2012, PLOS ONE, https://doi.org/10.1371/journal.pone.0036401

leatherbacks nest along the Pacific coast of Mexico and Costa Rica and migrate south to foraging grounds off South America.

Population Status

Pacific leatherbacks are considered one of the most at-risk species because of the drastic decreasing trend since the 1980s. Western Pacific leatherbacks have declined more than 80 percent and Eastern Pacific leatherbacks have declined by more than 97 percent. More recent trend analyses, on the primary nesting beaches in both the East and West Pacific, continue to show declines.

Habitat

Leatherbacks are pelagic (open ocean) animals, but they also feed in and migrate through coastal waters. Western Pacific leatherbacks engage in one of the greatest migrations of any air-breathing marine animal, swimming from tropical nesting beaches in the western Pacific (primarily Indonesia, Papua New Guinea, and the Solomon Islands) to foraging grounds in the eastern North Pacific off the U.S. coast. The nearly 7,000-mile trans-Pacific journey through the exclusive economic zones of multiple Pacific nations and international waters requires 10 to 12 months to complete. In 2012, critical habitat was designated off of the U.S. West Coast (California, Oregon, and Washington), because these areas are key foraging sites for the Western Pacific leatherback.

Leatherback turtle nest with hatchings.

Adult females require sandy nesting beaches in warm, tropical climates for egg laying. Eastern Pacific leatherbacks nest along the Pacific coast of the Americas, primarily in Mexico and Costa Rica. Western Pacific leatherbacks demonstrate a bimodal pattern of seasonal nesting during the winter and summer months in the west Pacific, primarily in Indonesia, Papua New Guinea, and the Solomon Islands.

Threats

Like other sea turtle species, leatherbacks face significant threats from bycatch in fisheries (e.g., entanglement and/or hooking), illegal collection of eggs and killing of adult turtles, coastal development, pollution, marine debris, and climate change.

Leatherbacks are particularly vulnerable to bycatch in fishing gear. Gear modification and best practices have been implemented in many fisheries that have reduced incidental bycatch of leatherbacks, but globally, impacts from artisanal and industrial fishing operations have not been

resolved. Today, bycatch remains the most significant threat to Pacific leatherbacks throughout their migratory corridors and foraging/feeding areas.

Species Recovery

U.S. Conservation and Management

The United States has taken significant steps to protect leatherbacks in our waters. In the Pacific, a leatherback conservation area was established off the coast of California in 2001 that prohibits drift gillnet fishing from August 15 to November 15 in 213,000 square miles of the Exclusive Economic Zone. In 2009, the Marianas Trench, Rose Atoll, and Pacific Remote Islands marine national monuments were established, prohibiting commercial and recreational fisheries, thus providing important protected areas for sea turtles in this region. And similar to Atlantic fisheries, Hawaii-based longline fisheries have been regulated to reduce leatherback interactions.

Leatherback turtles nest several times during a nesting season, typically at 8- to 12-day intervals and lay 85–95 tennis ball size eggs.

Additionally, vessel owners and captains participating in the Hawaii-based longline fishery and the California drift gillnet fishery must attend Protected Species Workshops annually where they receive new and updated information on sea turtles in the Pacific Ocean and new, relevant fisheries regulations, as well as training on safe handling and release procedures including the resuscitation of sea turtles. Longline fishermen are also required to carry and use dip nets, line cutters, and de-hookers to release any incidentally-caught sea turtles.

International Efforts

While significant conservation activities continue in the United States, the highly migratory nature of Pacific leatherbacks necessitates regular cooperation with international partners to address the main threats.

International collaboration includes participation in several multilateral and regional treaties that have resulted in measures to conserve leatherback populations. Some of the accomplishments under these agreements include the development of the Inter-American Convention for the Protection and Conservation of Sea Turtles East Pacific Leatherback Task Force, which has identified measures to reduce mortality of

Eastern Pacific leatherbacks in marine habitats and protect nesting sites and nesting females to increase reproductive productivity.

Screening a nest to protect from predators in Papua New Guinea.

The United States also maintains a leadership role within several Regional Fishery Management Organizations, proposing and/or supporting resolutions to protect sea turtles including binding measures to reduce fisheries interactions.

In addition to regional and multilateral agreements, NOAA Fisheries and the U.S. Fish and Wildlife Service support bilateral projects (through grants and in-kind support) to recover Pacific leatherbacks throughout their range. For example, in Papua Barat, Indonesia—a significant nesting area for Western Pacific leatherbacks—NOAA Fisheries and U.S. FWS have collaborated with local institutions, like The State University of Papua (UNIPA), for more than a decade to reduce poaching on nesting beaches, establish regular nesting surveys, improve community engagement in the protection of the nesting beaches, and ensure that protection continues into the future. UNIPA's work has been instrumental in building local support for conserving and recovering Pacific leatherbacks. As a result, NOAA Fisheries named Dr. Fitry Pakiding from UNIPA, a Species in the Spotlight hero. NOAA Fisheries and U.S. FWS also work bilaterally with several countries to reduce leatherback bycatch in coastal waters, particularly in the Pacific.

Species in the Spotlight Priority Actions

As part of our Species in the Spotlight initiative, NOAA Fisheries developed a 2021-2025 Priority Action Plan for the Pacific leatherback, which builds on the 2016-2020 Priority Action Plan and details the key conservation efforts that are needed to recover this critically endangered species. Without focused efforts in the Pacific, leatherbacks may not recover and may become eliminated from the entire ocean basin.

Together with U.S. FWS, we identified the following priority actions for 2021–2025.

- Reduce fisheries bycatch and in-water harvest
- Improve protection on nesting beaches
- Support in-water research and monitoring to inform conservation actions
- Foster cooperation with international partners
- Encourage public engagement

Leatherback turtle hatchling crawling to the ocean in West Papua, Indonesia.

In our first five years of the Species in the Spotlight initiative, we have:

- Helped in efforts to reduce leatherback bycatch in coastal fisheries of five countries (Mexico, Peru, Chile, Philippines, and Indonesia)
- Protected key nesting beaches and foraging areas in Indonesia, Papua New Guinea, Solomon Islands, Mexico, Nicaragua, Costa Rica, and California
- Reduced bycatch in U.S. pelagic longline fisheries
- Strengthened cooperation with Indonesia and Mexico
- Celebrated California's annual Pacific Leatherback Day and offered outreach and educations program

2017 Species in the Spotlight Hero Award

The State University of Papua (UNIPA) has been actively engaged in recovering the largest remaining leatherback nesting population in the Western Pacific for more than 10 years. UNIPA has worked at "ground zero" for leatherback conservation in the Western Pacific. They established a science-based management plan that minimizes sea turtle nest failure and enhances hatchling production.

Learn more about UNIPA's work >

A village in Wau-Weyaf West Papua, Indonesia, after attending a leatherback turtle outreach program. Credit: Kartika Zohar.

2019 Partner in the Spotlight Award

Over the last decade, the Eastern Pacific Leatherback Network, or Red Laúd del Océano Pacífico Oriental ("Laúd OPO") in Spanish, has brought together scientists and conservation practitioners across the Eastern Pacific to compile and synthesize key nesting and fisheries bycatch data to help protect and recover Pacific leatherback sea turtles. The Laúd OPO network initiated a regional bycatch assessment. Based on this information, Laúd OPO has identified the most critical conservation actions to be taken by local and national governments.

Learn more about Laúd OPO's work >

Management Overview

Leatherback turtles are protected under the Endangered Species Act and listed as endangered. This means that the leatherback turtle is in danger of extinction throughout all or a significant portion of its range. NOAA Fisheries is working to protect and recover this species in many ways, with the goal of conserving and recovering the species worldwide.

In the United States, NOAA Fisheries and the U.S. Fish and Wildlife Service have joint jurisdiction for sea turtles, with NOAA having the lead in the marine environment and U.S. FWS having the lead on the nesting beaches. Both federal agencies, along with many state and U.S. territory agencies and international partners, are working together to conserve and recover sea turtles and have issued regulations to eliminate or reduce threats to sea turtles.

Recovery Planning and Implementation

Recovery Action

To help identify and guide the protection, conservation, and recovery of sea turtles, the ESA requires NOAA Fisheries and the U.S. FWS to develop and implement recovery plans which provide a blueprint for conservation of the species and measurable criteria to gauge progress toward recovery.

The major recovery actions for leatherback turtles include:

- Protecting sea turtles on nesting beaches and in marine environments
- Protecting nesting and foraging habitats
- Reducing bycatch in commercial, artisanal, and recreational fisheries
- Reducing the effects of entanglement and ingestion of marine debris
- Reducing vessel strikes in coastal habitats
- Working with partners internationally to protect turtles in all life-stages
- Supporting research and conservation projects consistent with Recovery Plan priorities

Two recovery plans have been developed to recover and protect leatherback turtle populations found in U.S. waters. Each is focused on the unique needs of leatherback turtles in the various regions.

- Recovery Plan for the U.S. Caribbean, Atlantic, and Gulf of Mexico Populations of the Leatherback Sea Turtle
- Recovery Plan for the U.S. Pacific Populations of the Leatherback Sea Turtle

The highly migratory behavior of sea turtles makes them shared resources among many nations, so conservation efforts for sea turtle populations must extend beyond national boundaries. This necessitates international collaboration and coordination. Learn more about international conservation efforts below.

Implementation

NOAA Fisheries is working to minimize effects from human activities that are detrimental to the recovery of leatherback turtles in the United States and internationally. Together with our partners, we undertake numerous activities to support the goals of the leatherback turtle recovery plans, with the ultimate goal of species recovery.

Efforts to conserve leatherback turtles include:

- Protecting habitat and designating critical habitat
- Reducing bycatch
- Rescue and disentanglement
- Eliminating the killing of turtles and the collection of their eggs
- Eliminating the harassment of turtles on nesting beaches and foraging habitats through education and enforcement
- Consulting with federal agencies to ensure their activities are not likely to jeopardize the continued existence of listed species

Pacific leatherbacks are one of NOAA Fisheries' Species in the Spotlight.

Critical Habitat

Once a species is listed under the ESA, NOAA Fisheries evaluates and identifies whether any marine areas meet the definition of critical habitat. Those areas may be designated as critical habitat through a rulemaking process. A critical habitat designation does not set up a marine preserve or refuge. Rather, federal agencies that undertake, fund, or permit activities that may affect designated critical habitat areas are required to consult with NOAA Fisheries to ensure that their actions do not adversely modify or destroy these designated critical habitats.

In 1979, NOAA Fisheries and the U.S. FWS designated critical habitat for endangered leatherback turtles for coastal waters adjacent to Sandy Point in St. Croix, U.S. Virgin Islands. In 2012, NOAA Fisheries also designated critical habitat for endangered leatherbacks along the west coast of the United States.

View the leatherback turtle critical habitat map for the U.S. Virgin Islands ›

View the leatherback turtle critical habitat map for the U.S. West Coast ›

Leatherback sea turtle swimming at ocean surface - Photo credit: NOAA Fisheries

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Conservation Efforts

Reducing Bycatch

NOAA Fisheries is working to reduce the bycatch of sea turtles in commercial fisheries. Our efforts are focused on documenting bycatch, understanding how, why, and where sea turtles are bycaught, and how to reduce that bycatch. We have developed modifications to fishing gear and practices to reduce bycatch and/or reduce bycatch injuries. We require these modifications in certain U.S. commercial fisheries including gillnets, longlines, pound nets, scallop dredges, and trawls that accidentally catch sea turtles. Measures include:

- Gear modifications
- Changes to fishing practices
- Time/area closures

In the United States, NOAA Fisheries has worked closely with the shrimp trawl fishing industry to develop turtle excluder devices (TEDS) to reduce the mortality of sea turtles bycaught in shrimp trawls. TEDs are required in the shrimp otter trawl fishery and, in early 2021, in larger vessels participating in the skimmer trawl fishery.

Since 1989, the United States has prohibited the importation of shrimp harvested in a manner that adversely affects sea turtles. The import ban does not apply to nations that have adopted sea turtle protection programs comparable to that of the U.S. (i.e., require and enforce the use of TEDs) or to nations where bycatch in shrimp fisheries does not present a threat to sea turtles (for example, nations that fish for shrimp in areas where sea turtles do not occur). The U.S. Department of State is the principal implementing agency of this law while NOAA Fisheries serves as technical advisor and provides extensive TED training throughout the world.

We are also involved in cooperative gear research projects, implementation of changes to gear and fishing practices, and safe handling protocols designed to reduce sea turtle bycatch and mortality in the Gulf of Mexico and Atlantic pelagic longline fisheries, the American Samoa and Hawaii-based longline fisheries, the Atlantic sea scallop dredge fishery, and non-shrimp trawl fisheries in the Atlantic and Gulf of Mexico.

Fisheries Observers

Bycatch in fishing gear is the primary human-caused source of sea turtle injury and mortality in U.S. waters. The most effective way to learn about bycatch is to place observers aboard fishing vessels. Observers collect important information that allows us to understand the amount and extent of bycatch, how turtles interact with the gear, and how bycatch reduction measures are working.

NOAA Fisheries determines which fisheries are required to carry observers, if requested to do so, through an annual determination. Observers may also be placed on fishing vessels through our authorities under the Magnuson-Stevens Act.

Responding to Strandings and Entanglements

A stranded sea turtle is one that is found on land or in the water and is either dead or is alive but unable to undergo normal activities and behaviors due to an injury, illness, or other problem. Most strandings are of individual turtles, and thousands are documented annually along the coasts of the

United States and its territories. Organized networks of trained stranding responders are authorized to recover dead turtles or assist live turtles and document important information about the causes of strandings. These networks include federal, state, and private organizations. The actions taken by stranding network participants improve the survival of sick, injured, and entangled turtles while also helping scientists and managers expand their knowledge about threats to sea turtles and causes of mortality.

Because sea turtles spend most of their life at sea and out of sight, information learned from strandings are an important way for us to identify and monitor problems that threaten sea turtle populations.

Within the United States and its Territories, there are three regional networks that serve to document and rescue stranded and entanglement sea turtles:

- Atlantic Ocean, Gulf of Mexico, and Caribbean: Coordinated under the Sea Turtle Stranding and Salvage Network (STSSN)
- Pacific Ocean (continental U.S. West Coast): Coordinated by NOAA's West Coast Regional Office
- Pacific Islands (Hawaii, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands): Coordinated by NOAA's Pacific Islands Fisheries Science Center and the Pacific Islands Regional Office

The actions taken by stranding network participants improve the survivability of sick, injured, and entangled turtles while also helping scientists and managers to expand their knowledge about diseases and other threats that affect sea turtles in the marine environment and on land.

International Conservation Efforts

The conservation and recovery of sea turtles requires international cooperation and agreements to ensure the survival of these highly migratory animals. We work closely with partners in many countries across the globe to promote sea turtle conservation and recovery. Two international agreements specifically focused on sea turtle conservation are:

- Indian Ocean - South-East Asian (IOSEA) Marine Turtle Memorandum of Understanding
- Inter-American Convention (IAC) for the Protection and Conservation of Sea Turtles

Additional international treaties and agreements that also protect sea turtles include:

- Convention on International Trade in Endangered Species (CITES): Listed in Appendix I, which prohibits international trade of wild flora and fauna
- Cartagena Convention: Protected under Annex II of the Specially Protected Areas and Wildlife (SPAW) Protocol

Regulatory History

The leatherback turtle was first listed under the ESA in 1970. In 2017, NOAA Fisheries and U.S. FWS received a petition to identify the Northwest Atlantic leatherback subpopulation as a DPS and list it as threatened under the ESA. We found that the petitioned action may be warranted and conducted a global status review. After evaluating the best available science and conservation efforts on behalf of the species, we determined that the petitioned actions were not warranted because all leatherback populations meet the definition of an endangered species. Therefore, as we described in the 2020 12-month finding, the leatherback turtle remains listed as an endangered species under the ESA.

In 1992, we finalized regulations to require turtle excluder devices (TEDs) in shrimp trawl fisheries to reduce sea turtle bycatch. Since then, we have updated these regulations as new information became available and TEDs were modified to improve their turtle exclusion rates. TEDs are also required in the summer flounder fishery in certain areas along the Atlantic coast of the United States.

We have also implemented other measures to reduce sea turtle bycatch in fisheries through regulations and permits under both the ESA and Magnuson-Stevens Act. These requirements include the use of large circle hooks in longline fisheries, time and area closures for gillnets, and modifications to pound net leaders and Atlantic sea scallop dredges.

See all regulations to protect sea turtles >

Key Actions and Documents

Actions & Documents | Incidental Take

12-Month Finding on Petition to Identify Northwest Atlantic Leatherback Turtle as Distinct Population Segment

We, NMFS and USFWS, announce a 12-month finding on a petition to identify the Northwest Atlantic population of the leatherback turtle (Dermochelys coriacea) as a distinct population segment (DPS) and list it as threatened under the Endangered Species…

- 12-Month Finding (85 FR 48332, 08/10/2020)
- 90-Day Finding (82 FR 57565, 12/06/2017)
- Status Review of the Leatherback Turtle -2020
- Technical and Legal Analysis Provided in Support of the Petition (PDF, 57 pages)
- Petitioner Notification Letter to State Agencies (PDF, 72 pages)
- Petition from Blue Water Fishermen's Association (PDF, 3 pages)

Notice

, National

PUBLISHED

08/10/2020

Final Annual Determination for 2020

NOAA Fisheries publishes the final Annual Determination (AD) for 2020, pursuant to its authority under the Endangered Species Act. Through the AD, NOAA Fisheries identifies U.S. fisheries operating in the Atlantic Ocean, Gulf of Mexico, and Pacific…

- Final Annual Determination for 2020 (85 FR 53684; August 31, 2020)
- Proposed Annual Determination for 2020 (85 FR 3880; January 23, 2020)
- More Information: Sea Turtle Annual Determination

Final Rule

, National

EFFECTIVE

09/30/2020

Five Year Review of Leatherback Sea Turtles

NMFS announces 5-year reviews of Kemp's ridley (Lepidochelys kempii), olive ridley (Lepidochelys olivacea), leatherback (Dermochelys coriacea), and hawksbill (Eretmochelys imbricata) sea turtles under the Endangered Species Act of 1973, as amended (ESA)…

- Notice of Initiation of 5-year Review
- Five Year Review (11/2013)

Notice

, National

PUBLISHED

12/10/2012

Critical Habitat Designation For Leatherback Sea Turtles Along the U.S. West Coast

We, the NOAA Fisheries, issue a final rule to revise the current critical habitat for the leatherback sea turtle (Dermochelys coriacea) by designating additional areas within the Pacific Ocean. This designation includes approximately 16,910 square miles…

- Final Rule
- Proposed Rule
- Extension of Public Comment on the Proposed Rule
- 90-day Finding
- Critical habitat maps & GIS data
- Economic Impacts Associated with the U.S. West Coast Critical Habitat Designati…
- Final Biological Report Final Rule to Revise the Critical Habitat Designation f…

Final Rule

Final Rule

, National
EFFECTIVE
02/27/2012

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Science Overview

NOAA Fisheries conducts research on the biology, behavior, and ecology of the leatherback sea turtle. The results of this research are used to inform management decisions and enhance recovery efforts for the species.

Population Assessments

Sea turtle population assessments ideally include information on the species' abundance and distribution, life history, and human impacts. This information can help NOAA Fisheries evaluate the effectiveness of conservation and recovery measures, and can help guide actions to enhance recovery. To estimate population abundance, researchers conduct aerial and vessel-based surveys of selected areas and capture and mark turtles in the water and on beaches. We also incorporate data collected on nesting beaches via stranding networks and fromfisheries observer programs. Other information that informs sea turtle population assessments includes population structure (genetic analyses), age to maturity, survivorship of the various life stages (e.g., hatchling, juvenile, adult) foraging and reproductive behavior, movement and distribution, and habitat studies.

Tagging and Tracking Studies

Satellite telemetry allows researchers to track sea turtles as they migrate between and within foraging and nesting areas. Tags are designed and attached in a manner that minimizes disturbance and/or harm to the turtle. The data help us understand migration patterns, identify feeding areas, and identify where turtles overlap with their primary threats (e.g., fisheries, vessel traffic).

Research scientist preparing to place a satellite tag on a leatherback turtle off Cape Cod, Massachusetts. Photo courtesy of Scott Landry (taken under NMFS Permit #1557-03).

NOAA Fisheries' scientists began tracking Pacific leatherbacks from central California foraging grounds in 2000, and have expanded these studies to the nesting beaches in the western Pacific after documenting that the California turtles originated from there. Learn more about tagging and tracking of leatherbacks in the Pacific:

- Long-Range Migrations and Habitats
- Tagging Research in Papua New Guinea
- Movements from Nesting to Feeding Areas Across the Pacific

Research to Reduce Bycatch in Fishing Gear

We observe fisheries to understand the level of sea turtle bycatch and the ways in which turtles interact with fishing gear. We work with partners and industry to develop modifications to fishing gear and/or fishing practices to reduce sea turtle bycatch while at the same time retaining a sustainable catch of targeted species. These efforts include the development of turtle excluder devices (TEDs) for use in trawl fisheries, use of circle hooks and certain bait types in longline fisheries, time and area closures/mesh size restrictions and low profile designs for gillnets, and modifications to pound net leaders.

Learn more about our fishing gear research ›

Sea Turtle Genetics

NOAA Fisheries' National Sea Turtle Molecular Genetics Center serves as a worldwide central repository for sea turtle tissue and DNA samples and constitutes a major area of research supporting sea turtle conservation. For example, a turtle's genetic "fingerprint" can be used to determine which nesting population it originated from.

Learn more about our turtle genetics and isotope studies ›

Documents

DOCUMENT

Species in the Spotlight: Priority Actions 2021-2025, Pacific Leatherback Turtle

The Species in the Spotlight initiative is a concerted agency-wide effort to spotlight and save…

West Coast, National

DOCUMENT

Status Review of the Leatherback Turtle (Dermochelys coriacea)

A 2020 status review for listing of Leatherback sea turtle as endangered species under the…

National

DOCUMENT

Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico

Programmatic biological opinion on the Gulf of Mexico oil and Gas Program in federal waters…

Southeast, National

DOCUMENT

Final Biological Opinion on the Continued Authorization for the Hawaii Pelagic Shallow-Set Longline Fishery

NOAA Fisheries biological opinion on the continued operation of the Hawaii shallow-set longline…

Pacific Islands

More Documents ›

Data & Maps

DATA

Recovery Action Database

Tracks the implementation of recovery actions from Endangered Species Act (ESA) recovery plans.

National

MAP

Protected Resources App

West Coast

MAP

Virginia Pound Net Regulated Area Map & GIS Data

New England/Mid-Atlantic

MAP

Summer Flounder Sea Turtle Protection Area Map & GIS Data

New England/Mid-Atlantic

More Data and Maps ›